

**IN THE CLAIMS:**

6. (Once amended) A microscope system for inspection during semiconductor manufacture comprising:

<sup>LM</sup>  
a laser module;

<sup>MI</sup>  
a microscope;

<sup>UP</sup>  
a coupling connecting the laser module to the microscope;

a pulsed laser for illumination, said laser being in the UV range; and

at least one rotating diffusion disk arranged behind the laser for the homogenization of the illumination.

7. (Once amended) The microscope system according to claim 6, including two diffusion disks rotating in opposite directions arranged directly or indirectly behind each other in an illumination ray path.

8. (Once amended) The microscope system according to claim 6, wherein the diffusion disk is either of a granulated or of a holographically produced design.

9. (Once amended) The microscope system according to claim 6, with a rotation speed of the diffuser disk of at least a magnitude that a rotation by at least one grain size or the resolution limit of a holographically generated structure or by the length of a structure takes place between two laser pulses.

10. (Once amended) The microscope system according to claim 6, with an illumination laser wavelength which essentially corresponds to an illumination wavelength during the manufacture of semiconductors.

11. (Once amended) The microscope system according to claim 10, wherein the illumination wavelength is in the range of 193nm or 248nm or 266nm or 366nm, all with a tolerance of

Sub C3 +/-2nm.

12. Please cancel claim 12.

13. (Once Amended) In an inspection device for use in semiconductor manufacture, having a laser microscope, an improvement comprising:  
a pulsed laser in the UV range;  
and at least one rotating diffusion disk arranged behind the laser for the homogenization of the illumination.

PLEASE ADD THE FOLLOWING NEW CLAIMS:

14. (New) A microscope system for inspection during semiconductor manufacture comprising:  
a laser module;  
a microscope;  
a coupling connecting the laser module to the microscope;  
a pulsed laser for illumination, said laser being in the UV range;  
at least one continuously rotating diffusion disk arranged behind the laser for the homogenization of the illumination;  
and wherein two diffusion disks rotate in opposite directions arranged directly or indirectly behind each other in an illumination ray path.

15. (New) A microscope system for inspection during semiconductor manufacture comprising:  
a laser module;  
a microscope;

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and a coupling connecting the laser module to the microscope;  
a pulsed laser for illumination, said laser being in the UV range;  
at least one continuously rotating diffusion disk arranged behind the laser for the  
homogenization of the illumination;  
wherein the diffusion disk is either of a granulated or of a holographically produced  
design, and;  
with a rotation speed of the diffuser disk of at least a magnitude that a rotation by at  
least one grain size or the resolution limit of a holographically generated structure or by the  
length of a structure takes place between two laser pulses.

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